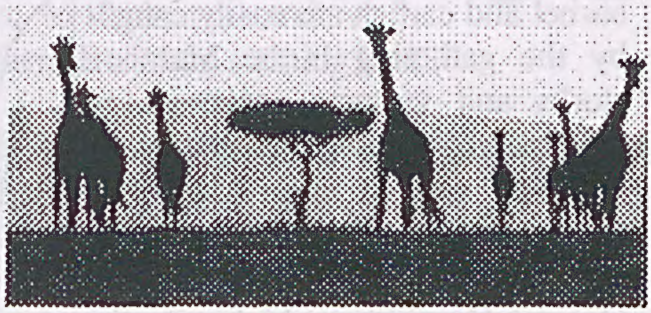
The Ballarat Naturalist

May 2002



Giraffes in savanna
(Living Planet/Attenborough)

Animals of Africa

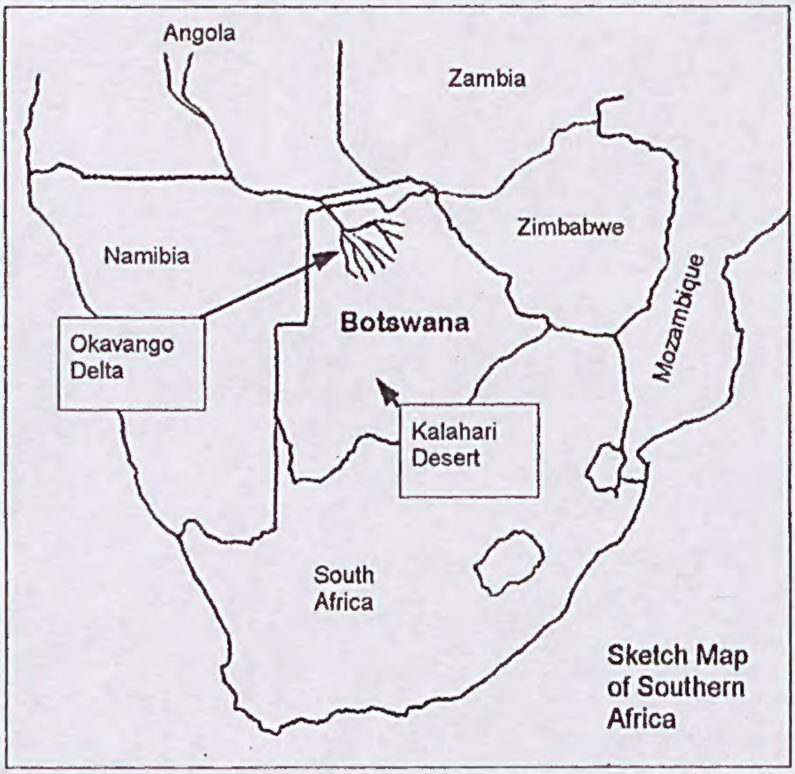
Speaker: Andy van Smeerdijk

Botswana is a nation of 1.6 million people, about the area of France and consisting of savanna and semi-desert. It receives 400-500 mm of rainfall per year. The Kalahari Desert occupies about a third of the country. The administration adheres to the policy of high revenue/low impact tourism: 40% of the country is covered by some form of protective legislation and 20% is National Park. Safaris are taken by open 4WD, traditional dug-out canoe or on foot. Camps rarely offer more than 20 beds so you are unlikely to see another tour group.

From 1993-1999 Andy worked as a wildlife guide in Botswana. He ran wildlife and birdwatching trips, mostly based in the Okavango Delta where he managed the construction of the country's first joint venture safari camp and assisted in wild dog research. As a result of these experiences he was able to take some impressive photos of the native creatures. He clearly retained a special affection for the African wild dog, of which only 5000 remain. Cape Ground Squirrels were shown to share the same burrows as Meerkats, and the Bat-eared Foxes were seen at night listening for termite activity. Botswana's equivalent of the echidna, the Pangolin, preys on ants. A Flat-necked Chameleon displayed the swivel eyes typical of its species.

Of the cats, Andy showed photos of the Cheetah, the fastest of them all, clocking speeds up to 120 kph. Lions will venture happily into water whereas cheetahs prefer not to. A fine shot of a leopard in a tree in the evening light demonstrated how well these animals merge into their surroundings. We were entertained with stories of aggressive hippopotamuses, of waterbuck and warthogs.

Botswana is around 3000' above sea level with hot dry days and cool nights. The Okavango Delta lies in the northern part of the country, a region fed by the river flowing south-eastwards from Angola and losing itself in the sands of the Kalahari. A network of braided streams and fossil river valleys lined with papyrus and fig



trees covers an area of 18,000 km^2 and can be negotiated by canoe. After rain and seasonal floods, water areas shrink and fish such as barbel and catfish are easily caught by the gathering birds. Marabou storks and vultures scavenge on carcasses left by other predators.

We saw shots of the Tawny Eagle, the Marshall Eagle, Ostrich, Ground Hornbill - which eats the dung beetles, and White-faced Whistling Ducks. Poaching has been a problem, and White Rhino have had to be re-introduced to their former range. Hunting of Nile crocodiles was banned ten years ago, and some animals have learnt to stay within protected zones. Gemsbok and Greater Kudu graze on the vast grasslands and Elephants are plentiful.
The lure of the water ensures that the visitor can always find a wealth of wildlife.

"Oh give me a home where the buffalo roam, Where the deer and the antelope play........"

The excursion to the Open Range Zoo at Werribee was a most appropriate sequel to the prior presentation on the animals of Botswana game reserves by Andy van Smeerdijk.

In safari mood, 21 members and friends travelled to Werribee by bus with secretary John at the wheel. The weather was ideal and we were able to enjoy the safari tour, two walking trails and the Discovery Centre before departing for home at 4 pm.

The driving tour through the grassland areas, organised to contain grazing animals from the different continents, provided excellent viewing of an interesting range of animals which included: Kangaroo, Emu, Cape Barren Goose, Bison, White-tailed deer, Dromedary Camel, Addax, (a white antelope nearing extinction in Africa but flourishing in breeding programmes here), Hippopotamus - with young, Sambar, Chital, Indian Antelope (such long spiral horns!), Blackbuck, Kudu, Scimitar-horn Oryx, Zebra (plus a cute day old foal), White Rhinoceros, Giraffe, Eland, Ostrich, and Egyptian Goose. This tour was enhanced by an informative commentary by the driver/guide.

Walking trails through the well-vegetated areas around the lakes and wetlands revealed Serval Cat, Cheetah, Vervet Monkey and Meerkat, but also visiting Australian birds and other fauna. These ranged from Brolga (most likely there under house arrest!), to Pelican, Swan and Ibis, to duck, teal and other waterfowl, to Landrail, to a fine Southern Bell-frog sunning itself.

A developing project is the planting of wallaby grass for a conservation initiative to establish a colony of the endangered Golden Sun Moths *Synemon plana.* The larva of this moth spends two years underground in the roots of wallaby grass, pupates, emerges and lives for four days only in the adult form. The eggs are laid on the grass and the cycle continues.

The outing proved to be a successful expedition, enjoyed by all participants who were grateful to John for his efforts in ensuring safe transit.

Greg Binns.

April Meeting Points

- 40 members and visitors were welcomed to the meeting.
- Orders for hats and badges: members asked to fill in order sheet.
- Claire Miller: Request for survey of orchids at Clarkesdale Bird Sanctuary and Linton Trust for Nature Block.
- Kevin and Ann Knight: Prisoners from Langi Kal Kal are weeding Linton Trust for Nature Block. Request for plant list.
- Centre for Environmental Management: Central Highlands Water Biodiversity Audit.
- Flora and Fauna Surveys: Greg Binns, Pat and Bill Murphy are supplying information about Narmbool bush area and Central Highlands Water lands.
- Lyndsay Fink: Recognition of 20 years service on committee.
- Lake Wendouree CD-ROM: Available from Treasurer.
- Campout Planning: Outline given of the progress made by the committee. Suggestions for excursions were requested.

Show and Tell.

- Carol Hall: Photograph of dead snake (probably Copperhead) from Cuthberts Road, Burrumbeet. Dried skin of a tortoise from Lake Hindmarsh.

Field Reports

- Ken McDonnell: European Wasp captured a green caterpillar from turnips, decapitated it while sitting on a post and then flew away with the body.

- Del McDonnell: Bats flying about Creswick on warm evenings.
- Greg Binns: European Wasp crawling into lettuces and taking vegetable matter from leaves.
- Frank Harrap: Wedge-tailed Eagle flying over Mt Buninyong. 11 Spotted Turtle Doves at Mt Helen.
- Kay Preston: Dead Tawny Frogmouth on Sturt Street.
- Chris Baulch: Mallee Fowl on Whimpey's block at Nhill.
- Margaret Tonkin: Many water birds including Black Swan and Pied Oystercatcher at Murray's Lagoon, Kangaroo Island.
- Maureen Christie: Galah in central Ballarat.
- Pat Murphy: 2 Spotted Turtle Doves in Ballarat garden for most of week.
- Adrian Morton: 2 young Crimson Rosellas on block at Clunes for first time.
- Tim Davison: Raptor (probably Peregrine Falcon) eating a freshly killed Galah at Mt Helen.
- Carol Hall: Near Kiata, Spotted Harrier flying along fence line, startled a hare, was joined by Wedge-tailed Eagle, which in turn was harassed by the Harrier.

Mycorrhizae

This seemingly impossible word for a natural phenomenon is derived from two Greek words. Mykos, a fungus and rhiza, a root, hence mycorrhiza (singular) literally means fungus root.

The word mykos is also seen in mycology - the study of fungi, mycosis - fungal disease in animals, mycelium - the mass of filamentous hyphae in fungi. Also as a suffix as -mycete or -myces as in basidiomycetes - mushrooms and toadstools, and *Saccharomyces* the yeasts or sugar fungi. Rhiza appears in rhizome - an underground or partly underground stem as in *Iris germanica*, in Rhizophoracae - a family of mangroves and rhizo-sphere, the volume of soil around the root system of a plant.

A mycorrhiza is an association between a fungus and a plant root or other underground part, in a relationship which is usually symbiotic. In other words the two organisms are mutually beneficial. However the balance between the organisms is often tenuous, with a degeneration into parasitism by the fungus on the one hand and the total inhibition of the fungus by the host, as seen in some orchids, on the other. As in other natural situations the partnership is one of mutual exploitation.

The mycorrhizal fungi are rarely dependent (obligate) on the host since they are usually saprophytic, that is they thrive by breaking down organic matter. The nutrients derived from this breakdown can be transferred to the host. In return the host supplies substances elaborated in its biochemistry, including photosynthesis in green plants. Although in some cases essential micronutrients drawn from the host may render the fungus near obligate.

The mycorrhizal fungus may form a sheath around the rootlet, being confined to the surface. This type is described as ectotrophic. This is the characteristic form of mycorrhizae of forest trees. Many of these fungi are basidiomycetes (the mushrooms and toadstools). Another type of mycorrhiza is described as endotrophic in which the fungus invades the host organ but is confined to specific layers. This type is found in orchids and in the Erica family (closely related to the Epacrids). Invasion of orchid seeds by fungi is essential for germination in some cases.

There are other types of mycorrhizal fungi which will not be covered in this note.

A particularly interesting mycorrhiza is seen in the leafless members of the orchid genus *Dipodium*, the most familiar being the Hyacinth Orchids, which generate very little of their own food. Here is an association between the orchid's tuberous roots (as we saw on Mt. Cole) and the fungus which draws nutrients from the breakdown of organic matter in the soil (saprophytic) but also from the roots of myrtaceous trees, usually eucalypts, which it parasitises to supply the orchid. This phenomenon makes the *Dipodium* an epiparasite - parasite of a parasite. The *Dipodium* exercises control on the fungus within its roots to prevent itself becoming parasitised. The leafless *Dipodium* can appear to thrive in very hostile circumstances but in reality lives in the lap of luxury.

Hyacinth Orchid
Dipodium punctatum
(Cronin)

The mycorrhizal association between fungi and higher plants is widespread, and has existed since the beginnings of sub-aerial vascular plants at least.

The first sub-aerial complex plants were associated with fungi. This was ascertained in the fossils of the Rhynie flora in the early Devonian of Scotland (about 400 m.y.a.) The plants of this flora had been impregnated with siliceous minerals at the time of fossilization which yielded particularly clear detail in sections of the fossil, plants revealing presence of the fungi. It is probable that the association of fungus and complex plants was responsible for the successful first colonisation of dry land.

Other notable transgenic associations are the nitrogen-fixing bacteria in nodules on the roots of leguminous plants and the algal-fungal relationship in lichens.

Ken McDonnell.

Extracts from a Little Desert Diary, Easter 2002

A delicate pink, violet and blue sky heralds the appearance of the sun. The moon is still bright in the west and there has been a subdued morning chorus including parrots, magpies, grey currawongs and a kookaburra.

After two windy nights and days, calm weather has arrived. Sitting outside the tent with a hot cross bun and a cuppa, I see other campers stirring. The sun rises, lighting the pale trunks of the yellow gums with a gentle golden glow. There's a freshness in the air which will soon vanish as the sun climbs higher.

Last night some of us sat watching at a waterhole as a series of small birds came to drink. The energetic New Holland Honeyeaters constantly popped out of the thicket to perch on a convenient twig overhanging the water, leaning down to drink. Diamond Firetails stood on the sandy beach and sipped gently at the water's edge, while three Red-rumped Parrots quietly joined them. From time to time Peaceful Doves would appear and drink their fill. A single Spiny-cheeked Honeyeater appeared briefly, while a solitary Yellow-plumed and several White-plumed Honeyeaters came and went. Gradually the shadows lengthened across the pool and activity dwindled. Later, after dark, a bright Easter moon lit the campground.

Another day…..it was already warm at breakfast time, presaging greater heat later on. We walk in silence through the mallee fowl compound, having been advised not to talk. As we approach the bird's mound, Whimpey rattles the food tin, and minutes later "Charlie" appears. He pecks slowly and deliberately at the food on the ground, and we see how his plumage blends in under the dappled sunlight and the sandy brown terrain. Whimpey pretends to scratch sand and twigs onto the mound but the bird ignores him—it knows there are no eggs there, for Whimpey has removed them (under permission) to an incubator at home, aiming to beat the late, cool season which might have prevented a 100% survival rate of the chicks.

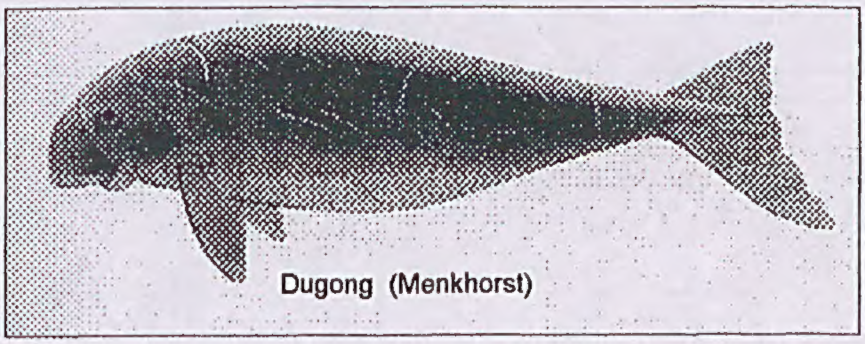
Meanwhile a Shy Heath-wren and a female Variegated Wren scrabble round in the sparse thickets beyond the mound. "Charlie" wanders off into the mallee scrub. We continue walking along the winding footpath, hearing Gilbert's Whistler and noting the great variety of shrubs beneath the spindly mallee eucalypts which are shedding bark in long ribbons.

Carol Hall.
BOCA Camp March 28-April 1 2002.

Aerial Survey Shows Dugongs Abound

The following is taken from the WA Dept of CALM's newsletter, March 2002.

A six-day aerial survey of the Shark Bay World Heritage area has confirmed the area has possibly the highest density of dugongs in the world, with an estimated 12,000 dugongs. Shark Bay has been recognised internationally for its significant dugong population. The last survey in 1999 had estimated about 14,000 dugongs in the area with estimates from 1994 and 1989 at 10,000.



Dugong (Menkhorst)

The 1999 survey was conducted not long after Cyclone Vance so there had possibly been an influx of dugongs from Exmouth Gulf and Ningaloo into the area.

This new survey, the first to be conducted in the summer, reinforced the theory that the average dugong population could be between 10,000-11,000 animals.

It also aimed to provide important information concerning distribution patterns and habitats of the dugong for future conservation of the species.

A joint project between CALM and Queensland's James Cook University, it has also enabled the department to gain a better insight into the movement of dugongs, and their habitats.

The aerial survey involved the flying of a twin engine aircraft along pre-determined transects at a ground speed of 100 knots and at a height of 137 metres.

The Australian regional populations of dugongs form the largest and most secure populations of dugongs in the world.

Editor.

Calendar

May

Fri. 3	Meeting: Club Members - Lake Wendouree Swans; Killer Whales.	
Sun. 5	Excursion: Narmbool Environmental Centre.	
Fri. 10—Mon. 13	Club Camp-out, Apollo Bay. Details in April newsletter.	
Wed. 29	Committee Meeting @ John Mildren's	7.30pm.

June

Fri. 7	Meeting: *Fauna Survey Methods* with Raymond Gibson.
Sun. 9	Excursion: Ballarat Grammar Environmental Centre with Phil Morrison. Celia Rosser Exhibition. **NB**. 2 pm at Gate D, Forest St.

Supper Duty

May: Eileen Anderson & Kay Preston
June: Maureen Christie & ?

Committee

President .... Mrs. Carol Hall
Vice-President .... Mr. Greg Binns
Secretary .... Mr. John Gregurke
Treasurer .... Mr. Bob Curtain

Miss Helen Burgess..........
Miss Maureen Christie.......
Mrs. Claire Dalman...........
Mrs. Carol Hall (Editor).....
Mr. Les Hanrahan.............
Mr. John Mildren.............
Mrs. Kay Preston.............

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Editor:

Website: www.ballarat.yourguide.com.au Click on *Local Info.* Search *Environment.*

Meetings are held at the Ballarat Horticulture Centre, cnr. Gregory & Gillies Sts (VicRoads 254 F8) on the first Friday of the month at 7.30pm.

Excursions: Depart from Creswick Plaza, Creswick Rd., Ballarat (VicRoads 255 M10) at 9.30am unless otherwise specified.

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